EMERGENCY SERVICES DIVISION PROCEDURE BROOKHAVEN NATIONAL LABORATORY	Procedure No. FR-FPR-5.0.2 Revision No. 3 Page 1 of 5

Procedure Title: **Cutting And Welding "Hot" Work**

1.0 **PURPOSE:**

1.1 This applies to the implementation of the Laboratory procedure for cutting and welding operations and similar "hot" work. These are detailed in BNL ES&H Standard 4.3.0, "Cutting and Welding".

1.2 Cutting and welding processes using oxy-acetylene gas flames and electric arcsproduce thousands of ignition sources in the form of sparks and hot slag. Numerous fires have been caused by cutting and welding in areas not specifically designed or approved for such work.

2.0 **RESPONSIBILITIES:**

2.1 All officers are responsible for being familiar with the contents of ES&H Standard 4.3.0.

2.2 The Fire/Rescue Group is responsible for:

2.2.1 The designation of an area as safe for routine cutting or welding.

2.2.2 Conducting an inspection and review of the area with the ES&H Coordinator or the Building Manager.

2.2.3 Maintaining a list of designated areas.

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2.3 The Fire Chief is responsible for coordinating this activity. The Chief shall:

2.3.1 Contact the ESH Coordinator or the Building Manager and request a list of areas where cutting and welding, and similar "hot" work is routinely done.

2.3.2 With the Building Manager and/or ES&H Coordinator, conduct an inspection of the area, using the criteria of ES&H Standard 4.3.0.

2.3.3 Maintain a list of designated areas. These certificates are to be posted so that the building inspector is aware of designated areas.

2.3.4 At least annually, request an update from the ESH Coordinator or Building Manager of the designated area list, and conduct an inspection of any new areas.

3.0 DEFINITIONS:

4.0 PREREQUISITES:

5.0 PRECAUTIONS:

6.0 PROCEDURE

6.1 Within the context of ES&H Standard 4.3.0, a designated area is a safe area where regular routine cutting and welding, and similar "hot" work is authorized. No permits are required for work in these areas. However, a certificate is issued and is to be displayed.

6.2 If cutting and welding operations are to be conducted outside a designated area, **ES&H Standard 4.3.0** requires that the facility line supervisor* responsible for the area secure a Cutting/Welding Permit from the Fire/Rescue Group before permitting any work to be performed. However, obtaining a permit does not relieve the facility supervisor from continuing to have basic safety responsibility for work being done in their facility.

6.3 The Duty Captain or Lieutenant is responsible for issuing the Cutting/Welding Permit, following his personal inspection of the location. In issuing the permit, the Duty Captain or Lieutenant is to consider the factors detailed in ES&H Standard 4.3.0, Section V, and outlined on the back of the permit form.

6.4 The permit tag should be completed, with special attention given to any special conditions required.

6.5 Copies of the permit tags are forwarded to the line supervisor of the facility, the line supervisor of the workers, and the Fire Chief.

6.6 Duration:

6.6.1 Permits are normally issued on a DAILY basis. Continuing permits, at the discretion of the Duty Captain, may be issued for periods of up to one week when the work area and conditions of the work are to remain substantially constant during the period. Continuing permits are not appropriate if the work area is to move to a different location in a facility unless these have been evaluated by the Captain/Lieutenant and are clearly indicated on the permit.

6.6.2 Special permits, up to one month duration, may be issued with the approval of the Fire Chief, for construction sites substantially isolated from BNL facilities. Regular inspections by the Duty

*If work is being done by an outside contractor, this may be appropriate BNL field inspector monitoring work.

Captain/Fire Lieutenant and/or Fire Inspector should be scheduled during the permit period.

6.7 Experimental Areas: Due to the potential high hazards at experimental areas, the ES&H Coordinator is to be contacted for concurrence on any permit issued for the Experimental areas. It should be noted on the permit that the Coordinator was consulted.

6.8 The Duty Captain or Fire Lieutenant is responsible for determining the need for a Fire Watch. A Fire Watch is normally justified when any of the following conditions exist:

6.8.1 Appreciable combustible material, either building construction or contents, is closer than 35 feet to the point of operation, or appreciable combustibles are more than 35 feet away but can be readily ignited by sparks.

6.8.2 Wall or floor openings within a 35-foot radius expose combustible material in adjacent areas, including concealed spaces in walls and floors.

6.8.3 Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, roofs, and are likely to be ignited by conduction or radiation.

6.8.4 Combustible materials are contained within enclosed equipment or the potential for vapor build-up exists, and monitoring is required.

6.9 Fire Watch:

6.9.1 BNL Activities: The Fire/Rescue Group will normally provide the Fire Watch for BNL activities, if adequate staffing is available. However, the Fire/Rescue Group has no obligation to provide a Fire Watch, and if the Fire/Rescue Group's staffing is inadequate to provide this service, **ES&H Standard** 4.3.0 requires that the operating department or the contractor provide the Fire Watch. The Duty Captain or Fire Lieutenant is responsible for determining that the Fire Watch is trained and for making sure that fire fighting equipment is in place and in working condition.

6.9.2 Contractors: New contracts administered by Plant Engineering require that the contractor provide the Fire Watch. The Fire/Rescue Group will provide a Fire Watch only when specifically authorized by the Fire Chief, his designee, or Emergency Services Division Manager.

6.9.3 When a firefighter is to be used as a Fire Watch, the Duty Captain or Fire Lieutenant is to make sure that the facility supervisor, the worker's supervisor, and the workers understand that the Firefighter is required to leave in response to emergency alarms, in which event all work is to immediately cease. If this procedure will create additional hazards or hardships, firefighters should not be used as a Fire Watch, or additional workers should be trained as Fire Watches to immediately take over if a firefighter is required to leave. It is the Captain's responsibility to assure that all involved in the work understand the conditions by which the Fire/Rescue Group provides the Fire Watch.

7.0 IMPLEMENTATION AND TRAINING

8.0 REFERENCES

9.0 ATTACHMENTS

9.1 Hot Work Permit

ATTACHMENT 1
HOT WORK PERMIT